

Joint Appendix JA7

Appendix JA7 – Data Registry Requirements

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JA7.1 Purpose and Scope

Joint Appendix JA7 provides specification for required functional and technical elements for Data Registries that provide services to authorized users and receive data to produce, register, retain, and distribute copies of compliance documents required for compliance with Title 24 Part 6.

- Document registration is defined.
- Requirements for registered documents are defined.
- Requirements for configuration of project documents in the Data Registry are defined.
- Requirements for electronic and digital signatures used on registered documents are defined.
- Requirements for data exchange between Data Registries and external software tools are defined.
- Requirements for transmittal of copies of documents to a document repository at time of registration are defined.
- Procedures for approval of Data Registries are defined.

A Data Registry Requirements Manual shall be recommended for approval by the Energy Commission to provide additional detailed specification for functional and technical elements necessary to support implementation of the requirements given in Reference Joint Appendix JA7.

JA7.2 Definitions

For the purposes of the specifications in Reference Joint Appendix JA7, the following definitions shall apply:

Asymmetric Key Encryption is also known as public key encryption. This type of encryption uses a pair of keys that are mathematically related: one key for encryption and another key for decryption. In digital signature processing, a user is assigned a private key that is not shared with anyone, and a public key that is given to anyone who receives digitally signed material from the user.

From California Code of Regulations, Title 2. Administration, Division 7. Secretary Of State Chapter 10. Digital Signatures, 22003, List of Acceptable Technologies: "The technology known as Public Key Cryptography is an acceptable technology for use by public entities in California..."

Both Microsoft.NET and Adobe development environments support PKCS1 asymmetrical key encryption.

Authorized User is a person who has a user account with a Data Registry and is required to provide their correct user name and password in order to access the Data Registry. Data Registry users may be required to provide professional licensure, certification or credential information, or other qualifying information as condition of receiving authority to provide signatures for certain types of documentation.

Compliance Document Data Transfer File is the Data Transfer File that contains data that represents the Compliance Document. The Compliance Document Data Transfer File is part of the Compliance Registration Transmission Package.

Compliance Registration Transmission Package is a zipped file that is transmitted to a Data Registry that contains the files required for registering a Compliance Document with a Data Registry.

Commission means the State of California Energy Resources Conservation and Development Commission, commonly known as the California Energy Commission, also referred to as the Energy Commission.

Commission Compliance Document Repository is an electronic database and document storage software application used for retention of Registered electronic Compliance Documents generated by Data Registries, and may also contain data and documentation relevant to other regulatory procedures administered by the California Energy Commission. The Commission Compliance Document Repository shall maintain these retained documents in accordance with Evidence Code section 1530-1532 (in the custody of a public entity).

Compliance Document is one of the following documents required for demonstration of compliance with Title 24, Part 6: Certificate of Compliance, Installation Certificate, Certificate of Acceptance, Certificate of Field Verification and Diagnostic Testing. A Compliance Document may also be a document that pertains to regulatory procedures other than those required by Title 24 Part 6 when the Energy Commission has the authority to require document Registration as condition of compliance.

Compliance Software is software approved by the California Energy Commission for use in demonstrating compliance with the performance standards in Title 24 Part 6.

Cryptographic Hash Function is a mathematical function that creates a unique number that represents the contents of a block of data or text. In digital signature processing the data or text that the user is digitally signing is called the message. The number generated by the cryptographic hash function is called the message digest. To verify a copy of the message, the cryptographic hash function is applied to both the original message and the copy of the message, and the resulting message digests are compared. If they are both the same, then the copy is valid.

There are a number of cryptographic hash functions used in digital signature processing. Both .NET and Adobe development environment support the most commonly used hash algorithm family, SHA-1, SHA-256, SHA-384, SHA-512 hash algorithms which were developed by National Security Agency (NSA).

Data Registry is a web service with a user interface and database maintained by a Registration Provider that provides for registration of residential or nonresidential compliance documentation used for demonstrating compliance with Part 6. Data Registries shall conform to the requirements specified in Reference Joint Appendix JA7 and the Commission-approved Data Registry Requirements Manual.

Residential Data Registry is a HERS provider data registry approved by the Energy Commission.

Nonresidential Data Registry is a HERS provider data registry approved by the Energy Commission, or a data registry approved by the Executive Director

Data Registry Requirements Manual is a document that provides additional detail specification for data registry requirements necessary to supplement the requirements in Reference Joint Appendix JA7. The Data Registry Requirements Reference Manual may be approved by the Energy Commission. Corrections, clarifications, revisions and addendums to the Registry Requirements Reference Manual may be approved by the Executive Director.

DTD means Document Type Definitions which is an older specification for defining a schema for XML files. It has been replaced by XSD or XML Schema Definition

Digital Signature is an "electronic signature based upon cryptographic methods of originator authentication, computed by using a set of rules and a set of parameters such that the identity of the signer and the integrity of the data can be verified." US 21CFR Section 11.3.

Registration Providers shall utilize digital signatures that employ asymmetric key encryption.

Documentation Author is the Documentation Author as defined in Title 24, Part 1, Section 10-102.

Electronic Signature is a "computer data compilation of any symbol or series of symbols executed, adopted, or authorized by an individual to be the legally binding equivalent of the individual's handwritten signature." US 21 Code of Federal Regulations (CFR) Section 11.3.

For the purposes of using electronic signatures to sign compliance documents, the electronic signature shall be an electronic image of the signer's handwritten signature.

Executive Director means the Executive Director of the Energy Commission.

Field Technician is the Field Technician as defined in Title 24, Part 1, Section 10-102.

HERS means Home Energy Rating System as described in TITLE 20, Chapter 4, Article 8, Section 1670.

HERS Provider is the same as the HERS Provider described in TITLE 20, Chapter 4, Article 8, Section 1670.

HERS Rater means a HERS rater as described in TITLE 20, Chapter 4, Article 8, Section 1670.

HERS Provider Data Registry is a residential data registry maintained by an approved HERS provider.

Message is a block of data or text that has been digitally signed

Message Digest is the unique number generated when a Cryptographic Hash Function is applied to the Message which is the data or text that is digitally signed.

Private Key is one of the keys in Asymmetric Key Encryption used in a Digital Signature. As its name implies, the Private Key should only be known to the owner of the Digital Signature. The private key is used to encrypt the Message Digest of the message that the user digitally signed.

Public Key is one of the keys in Asymmetric Key Encryption used in a Digital Signature. As its name implies, the Public Key must be made public to receivers of digitally signed documents in order to decrypt the Message Digest.

Registered Document means the document has been submitted to a residential or nonresidential data registry for retention, and the data registry has assigned a unique registration number to the document. The image of the registered document is accessible for printing or viewing by authorized users of the data registry via the registration provider's internet website. The registered document's unique visible registration number is appended onto the document image by the data registry.

A Registered Document has been verified as complete by the Data Registry. A Registered Document shall meet all applicable requirements in Standards Section 10-103(a), Reference Joint Appendix JA7, and the Data Registry Requirements Manual.

Registration is the process applicable to electronic Compliance Documents that are verified as complete by the Data Registry, and are electronically signed by all required Data Registry Authorized Users. The Registration process is completed when an authorized Registration Signer signs the Compliance Document

electronically, thus the HERS registry adds the Registration Signer's Electronic Signature to the signature block, and appends a unique Registration Number to each page of the document, applies the Registration Provider's Digital Signature to the entire Compliance Document, and displays the Digital Signature in the signature block. When Registration is complete, the Data Registry shall immediately and automatically transmit a copy of the completed Registered Compliance Document to the Commission Compliance Document Repository and the Data Registry shall also retain a copy of the Registered Compliance Document for use by authorized users for submittals.

Registration Number is an alphanumeric sequence of digits and delimiters appended to a Compliance Document when the document's Registration Signer provides his or her Electronic Signature to the Data Registry to complete the document Registration procedure for any document. Each Registration Number shall be unique to only one document. The registration numbering convention utilizes specific digits to reference the document type, revision level, and the parent-child relationships between the compliance documents in a specific project.

Registration Provider is an entity that has been approved by the Energy Commission or the Executive Director to provide Data Registry services. Registration Providers shall maintain Data Registries that conform to the requirements in Reference Joint Appendix JA7, and the specifications in the Data Registry Requirements Manual(s) approved by the Commission.

Registration Signer is a Responsible Person as defined in Title 24, part 1, Section 10-102, or as specified by other applicable qualifying regulations, who has established a user account with a Data Registry and has provided sufficient evidence to the Registration Provider to qualify for the authorization to register applicable compliance documentation by providing an electronic signature. The Documentation Author and Registration Signer on a compliance document may be one and the same person or they may be different persons.

Standards means the California Building Energy Efficiency Standards, Title 24, Part 6.

Standards Data Dictionary (SDD) is a dictionary that contains all data and technical terms used to describe building components, equipment, attributes and measurements that are regulated by the Standards. The purpose of the SDD is to provide the vocabulary that is used in expressing standards as well as published compliance documentation.

URI stands for Uniform Resource Indicator which is a standard for identifying a name or a resource on the Internet.

URL stands for Uniform Resource Locator is a type of URI used to identify locations on the World Wide Web

W3C stands for World Wide Web Consortium which is an international standards body that develops standards for the World Wide Web.

XML stands for Extensible Markup Language and is a set of rules for encoding documents in machine-readable form to facilitate the electronic transmission of documents. XML standard was developed by the W3C

XML Schema Definition Language is commonly referred to as XSD, which is another standard defined by the W3C. From the W3C.org page describing XSD: This document specifies the XML Schema Definition Language, which offers facilities for describing the structure and constraining the contents of XML documents, including those which exploit the XML Namespace facility. The schema language, which is itself represented in an XML vocabulary and uses namespaces, substantially reconstructs and considerably extends the capabilities found in XML document type definitions (DTDs). An XML schema uses XSD to define a set of rules to which an XML document must conform in order to be considered valid according to that schema. The rules can include definition of major organizational units, definition of data elements and attributes data types, constraints on valid values such as upper and lower bounds, and whether data is required or optional.

XSL-FO stands for Extensible Stylesheet Language Formatting Objects and is a standard of the W3C for representing content from an XML document plus formatting and layout instructions. XSL-FO is commonly used as a specification for form content and layout.

XSLT stands for Extensible Stylesheet Language Transformation which is a standard from the W3C for translating an XML document into another format such as XSL-FO or HTML

JA7.3 Introduction

A Data Registry is a web service with a user interface and database maintained by a registration provider that provides for registration of residential or nonresidential compliance documentation used for demonstrating compliance with Part 6. Data Registries shall conform to the requirements specified in Reference Joint Appendix JA7 and the Data Registry Requirements Manual.

The Data Registry shall make available to authorized users, all functional features specified by Reference Joint Appendix JA7 and the Data Registry Requirements Manual. Data Registries may provide optional features if approved as described in Section JA7.8.3.3.

Document registration is the process applicable to electronic compliance documents produced by an approved Data Registry that are created using data input by documentation author users who electronically sign the document to indicate data input is complete, whereupon the Data Registry checks the data input to verify the document data input is in fact complete. The registration process is finished only when the document data input has been verified as complete by the Data Registry, and an authorized registration signer signs the compliance document electronically; whereupon the Data Registry automatically performs the following actions:

- Adds the registration signer's electronic signature to the document's signature block.
- Appends a unique registration number to each page of the document.
- Applies the registration provider's digital signature to the entire compliance document.
- Displays the registration provider's digital signature in the signature block that includes a date and time stamp corresponding to the date and time of the document registration process conclusion.
- When the document registration process has concluded, the Data Registry shall immediately and automatically transmit a copy of the completed registered compliance document to the Commission Compliance Document Repository.
- The Data Registry shall also retain a copy of the registered compliance document for use by authorized users for submittals.

Paper copies of registered compliance documents printed directly from the Data Registry website, or electronic copies downloaded from the Data Registry website shall be used for submittal to enforcement agencies or other parties to the building construction project.

The registration provider's digital signature provides for automatic electronic verification of the authenticity of electronic copies of registered documents.

The electronic copies of the registered documents retained by the Commission Compliance Document Repository shall be utilized to satisfy public information requests, perform research, and shall be maintained in a manner conforming to Evidence Code section 1530-1532 (in the custody of a public entity) for use in enforcement of the Standards.

Any person or entity wishing to have a Data Registry approved shall submit an application to the Energy Commission. Data Registries may be approved by the Energy Commission or by the Executive Director to provide document Registration services. Data Registries shall conform to the requirements of Reference Joint Appendix JA7 and the Registry Requirements Reference Manual as a condition of approval.

JA7.4 Roles and Responsibilities - Authorized Users

This section summarizes the roles and responsibilities for the individuals who participate in the document registration procedures administered by a Data Registry. However, this section is not a complete accounting of the responsibilities of the respective parties.

JA7.4.1 Registration Provider

A Registration Provider is an entity that has been approved by the Energy Commission or the Executive Director to provide Data Registry services. Registration Providers are required to maintain Data Registries that conform to the requirements in Reference Joint Appendix JA7 and the specifications in the Data Registry Requirements Manual. Registration Providers are required to retain completed registered compliance documents and make copies of the registered documents available to authorized users for submittals to enforcement agencies or to other parties to the building project that require the documents. Registration Providers shall make services available that enable authorized users of their Data Registry to verify the authenticity of paper and electronic copies of the retained registered documents.

For residential compliance document registration, the Registration Provider is required to be a HERS Provider approved by the Energy Commission. For nonresidential compliance document registration, the Registration Provider is required to be either a HERS Provider approved by the Energy Commission, or a Registration Provider approved by the Executive Director.

JA7.4.2 Authorized Users

Authorized users are persons who have established a user account with a Data Registry and are required to provide their correct user name and password in order to access the secured information in that Data Registry. Data Registry authorized users may be required to provide proof of professional licensure, professional certification, or other qualifying information as a condition for receiving authority to access records or provide signatures for certain types of documentation. User accounts shall be established for each Data Registry for which a user must gain access.

The information required to establish a user account with a Data Registry shall be determined by the Registration Provider who shall gather and verify any and all information necessary to validate a user applicant's identity or applicable professional qualifications as prerequisite to authorizing assignment to a user applicant an electronic signature, or permissions as a documentation author, or permissions as a registration signer.

Additional requirements for establishing user accounts may be specified in the Data Registry Requirements Manual.

The roles and responsibilities in the remainder of this section JA7.4 describe specific types of authorized users of the Data Registry. Other types of authorized users are possible, and shall be described in the Data Registry Requirements Manual if such clarifications serve to support the intended functional and technical elements for Data Registries required in Reference Joint Appendix JA7.

JA7.4.3 View-Only Authorized User

Data Registries may provide user accounts that allow users to only view certain records. These types of accounts may allow access to records for validation of the information submitted to enforcement agencies on paper copies of registered documents, and for determining the status of completion of the full documentation package for a project.

JA7.4.4 Documentation Author

Documentation Authors provide administrative support for compliance document preparation. Documentation Authors may assist with the input of information required to complete the document registration procedures in a Data Registry. Persons who provide documentation author support for preparation of documentation in a Data Registry shall establish a user account and an electronic signature authority with the Data Registry.

Documentation Authors shall sign the documents they prepare, but documentation author signatures do not indicate or assume responsibility for the truth or validity of the information reported on a compliance document. Registration Signers and Field Technicians shall be authorized to provide Documentation Author signatures by default.

JA7.4.5 Field Technician

The Field Technician is responsible for performing the acceptance test procedures and documenting the results of the acceptance tests on a Certificate of Acceptance (only). The Field Technician shall sign the Certificate of Acceptance to certify that the information he reports on the Certificate of Acceptance is true and correct. When registration of a Certificate of Acceptance is required, the Field Technician shall establish a user account and an electronic signature authority with the Data Registry. When a Field Technician also performs the data input to prepare the Certificate of Acceptance documentation, the Field Technician shall also provide a documentation author signature on the Certificate of Acceptance.

JA7.4.6 Registration Signer (Responsible Person)

The Registration Signer is the person responsible for the work described on a compliance document (Certificate of Compliance, Installation Certificate, Certificate of Acceptance, or Certificate of Field Verification and Diagnostic Testing).

- **For Certificate of Compliance documentation,** the Registration Signer shall be eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design.
- **For Installation Certificate and Certificate of Acceptance documentation,** the Registration Signer shall be eligible under Division 3 of the Business and Professions Code to accept responsibility for the building construction or installation in the applicable classification for the scope of work described on the document.
- **For Certificate of Field Verification and Diagnostic Testing documentation,** the Registration Signer shall be a certified HERS Rater.

The Registration Signer shall provide a signature to certify that the information reported on a compliance document for which he is responsible is true and correct. When registration of a compliance document is required, the Registration Signer shall establish a user account and an electronic signature authority with the Data Registry. When a Registration Signer also performs the data input to prepare a compliance document, the Registration Signer shall also provide the documentation author signature on the compliance document.

JA7.4.7 Enforcement Agency

Standards Section 10-103(d) requires the Enforcement Agency to verify that all required compliance documents for a project are completed, signed, and submitted or posted as required by Standards Section 10-103(a). Thus, when Section 10-103(a) requires that a compliance document be registered with a Data Registry, the Enforcement Agency shall verify that the compliance document is a registered document.

Enforcement Agency persons shall establish user accounts for viewing the project documents in a Data Registry for which their jurisdiction has enforcement authority.

JA7.4.8 Energy Commission

The Energy Commission performs acceptance testing of Data Registries when a registration provider applicant submits an application, in order to determine if the requirements in Reference Joint Appendix JA7 and the Registry Requirements Reference Manual have been met.

Additionally, when a Data Registry incorporates new or optional features that are not specified by Reference Joint Appendix JA7 or the Data Registry Requirements Manual, the Commission performs acceptance testing of the optional features to ensure the optional features provide document registration results consistent with the requirements of Reference Joint Appendix JA7 and the Data Registry Requirements Manual.

The Commission may decertify (rescind approval of) Data Registries through various means described in Section JA7.8.4.

JA7.5 Document Registration Requirements

JA7.5.1 Overview

All compliance documents for which registration is required shall be created and registered in an approved Data Registry by authorized users of the Data Registry. Procedures for submittal of required documentation to enforcement agencies and other parties to the building construction project are given in Reference Residential Appendix RA2, and Reference Nonresidential Appendices NA1, and NA10. Standards Section 10-103(a) defines the administrative requirements for the compliance documents (Certificate of Compliance, Installation Certificate, Certificate of Acceptance, and Certificate of Field Verification and Diagnostic Testing).

Compliance documents produced by the Data Registry shall conform to the applicable informational content and graphical layout formatting approved by the Energy Commission as published in the Residential or Nonresidential Compliance Manuals. When corrections or revisions to compliance document informational content or graphical layouts are published by the Commission, the Data Registry shall incorporate those new compliance document layouts.

The Data Registry shall configure all compliance documentation for building projects to maintain a record of the parent-child relationships for the documents for a building project. The revision level for each compliance document shall be tracked and reported.

The Data Registry shall ensure that registered documents are retained such that they are available to authorized users for submittals to enforcement agencies or other parties to the building construction project that require copies of the registered compliance documents.

Contingent upon the availability of a Commission Compliance Document Repository, the Data Registry shall immediately and automatically, upon concluding the registration of compliance documents, transmit a copy of each registered compliance document to the Commission Compliance Document Repository.

JA7.5.2 Document Layouts

The informational content and graphical layout formatting used by the Data Registry shall conform to the layout approved by the Energy Commission as published in the Residential or Nonresidential Compliance Manuals. When corrections or revisions to compliance document informational content or graphical layouts are published by the Commission, the Data Registry shall incorporate those new compliance document layouts when producing registered compliance documents.

When data exchange procedures for compliance documents are required, the data definitions and data formatting required by Section JA7.7 shall be used.

Electronic document layouts shall utilize the specifications in the Data Registry Requirements Manual for location of Data Registry-specific information features required by the registration procedures. Examples of such information features are visible aspects of electronic and digital signatures that are appended to documents; registration numbers; registration date and time record information, and Data Registry provider logos and water marks. All information feature location coordinate specifications shall be provided in the Data Registry Requirements Manual, and shall be consistent with the design layouts for the compliance documents approved by the Energy Commission.

The ACM Reference Manual shall include all specification necessary to ensure that compliance software tools provide document output formatted to coordinate with these Data Registry-specific information features.

The following conventions shall be enforced:

JA7.5.2.1 Registration Number

The registration number for a multiple-page document shall be visible on all pages of the document.

JA7.5.2.2 Registration Date and Time

The registration date and time shall reflect the point in time corresponding to the submittal of the electronic certification signature by the person responsible for the information on the document. The format for the registration date and time record shall be calendar date (year-month-day) with time of day (hour-minutes-seconds). Hour of the day shall utilize 24-hour format. The formatting and location specification shall be given in the Data Registry Requirements Manual, and shall be used by all Data registries.

JA7.5.2.3 Performance Compliance Software Calculation Date and Time

The performance compliance calculation date and time information that is generated by the compliance software tool shall be retained as data in the record for the registered Certificate of Compliance document in the Data Registry.

The date and time information for the compliance calculation for a multiple-page performance Certificate of Compliance document shall be visible on all pages of the compliance document.

JA7.5.2.4 Electronic Signatures

Registered documents shall be electronically signed by the documentation authors, and by the persons who are eligible to assume responsibility for the documentation as specified by Standards Section 10-103(a) and who are authorized users of the Data Registry who have established an electronic signature authority with the Data Registry. The Registration Provider shall ensure that all required electronic signature procedures specified in Section JA7.6 and the Data Registry Requirements Manual are enforced. The electronic signature layouts and locations shall be consistent with the document layouts approved by the Energy Commission. Additional detail needed to clarify the location and formatting shall be given in the Data Registry Requirements Manual.

JA7.5.2.5 Digital Signatures

The Registration Provider shall ensure that the required digital signature procedures specified in Section JA7.6 and the Data Registry Requirements Manual are enforced. The location specification for the visible aspects of the registration provider's digital signature shall be specified in the Data Registry Requirements Manual.

JA7.5.3 Data Validation for Compliance Document Registration

Data Registries shall have the capability to automatically perform validation of data entered by a documentation author to complete a compliance document as required by the digital signature procedures in Section JA7.6.3.2.2.

There shall be a data validation rule set specific to each compliance document.

The data validation specifications shall be given in the Data Registry Requirements Manual and shall ensure that all information required by a compliance document is provided as a condition of registration of the document.

Compliance document data validation rules may be implicit in the formatting of the data elements that define a compliance document for data exchange processes, or data validation rules may be implemented by the Data Registry software. The Data Registry Requirements Manual shall provide the specification for the method for validation taking into consideration the specifications for the data elements for the data exchange processes described in Section JA7.7.

The Data Registry may flag data entry errors at any time during data entry, however all data validation shall be completed prior to allowing a documentation author signature action to be completed. Documents shall not be marked as ready for registration signing unless all required data validation errors have been corrected, and a documentation author signature action has been completed successfully.

The following conventions shall be enforced as a condition for registration of a document:

JA7.5.3.1 Null Entries

When completion of a compliance document requires data entry for an information field, the data shall be entered, otherwise registration shall not be allowed. However, if data entry for a particular information field is optional, a null entry shall not prevent registration from concluding.

JA7.5.3.2 Calculated Values

Whenever possible or practical, the Data Registry shall perform the calculations required for determining compliance results. Required calculations shall be specified in the Data Registry Requirements Manual.

JA7.5.3.3 Look-up Functions for Calculations

Whenever possible or practical, the Data Registry shall use lookup functions that provide values needed for completing calculations as referenced from the applicable protocols in the Reference Appendices or from Standards compliance criteria. The required Lookup functions shall be specified in the Data Registry Requirements Manual.

JA7.5.4 Registration Numbering Conventions

Registration numbers used for the document registration procedures described in Joint Appendix JA7 are alphanumeric sequences of digits and delimiters that are appended to a compliance document when the document's registration signer performs an electronic signature action in the Data Registry to conclude the registration procedure for a document. Each registration number shall be unique to only one document. The registration numbering convention assigns significance to certain digits in order to define the document type, document revision level, and the parent-child relationships between the compliance documents contained in a project. As the compliance document types required for residential projects are different than those required for nonresidential projects, the numbering conventions used shall conform to the conventions specified in sections JA7.5.4.1 and JA7.5.4.2 respectively.

Registration numbering conventions for other documentation processes are possible. Any new document process for which the Commission requires the documents be registered shall have a registration numbering convention specification. All new registration numbering convention specifications shall be published in the Data Registry Requirements Manual.

JA7.5.4.1 Nonresidential Registration Numbering Convention

Contingent upon approval of nonresidential Data Registries, a nonresidential registration numbering convention shall be determined and specified in the Data Registry Requirements Manual. The nonresidential registration numbering convention specification shall use a similar design concept as used in the residential registration numbering convention specified in Section JA7.5.4.2 which assigns significance to certain digits in order to define the document type, document revision level, and the parent-child relationships between the compliance documents contained in a project.

JA7.5.4.2 Residential Registration Numbering Convention

The registration numbers assigned to residential compliance documents by the Data Registry at the conclusion of the registration process shall conform to the conventions described in this section. Refer to Figure JA7.5-1 for information that defines the numbering convention, and an example registration number..

Other significant digits are possible in describing compliance documents for residential projects. When a new designation for a digit in the residential registration numbering convention is determined, it shall be appended to the Data Registry Requirements Manual, and implemented by all data Registries.

Any clarification to the numbering convention shall be appended to the Data Registry Requirements Manual and adhered to by the Data Registries.

1	provider (1=CHEERS; 2=CalCERTS; 3=CBPCA; sequential)
1	year digit 3 of 4 (eg 3rd digit of year 2013 is shown in example below)
3	year digit 4 of 4 (eg 4th digit of year 2013 is shown in example below)
-	delimiter
N	CC Type (N=new residential, A=alteration residential, D=addition residential)
0	numeric (sequential 0 through 9)
0	numeric (sequential 0 through 9)
0	numeric (sequential 0 through 9)
7	numeric (sequential 0 through 9)
3	numeric (sequential 0 through 9)
2	numeric (sequential 0 through 9)
1	numeric (sequential 0 through 9)
B	Revision Level (alpha only: A=first issuance; then sequential B through Z)
-	delimiter
M	CI Type (E=envelope, L=lighting, M=mechanical)
2	CI Type (first numeric digit eg "2" from the mech-21)
1	CI Type (second numeric digit eg "1" from the mech-21)
0	numeric (sequential 0 through 9)
0	numeric (sequential 0 through 9)
0	numeric (sequential 0 through 9)
5	numeric (sequential 0 through 9)
2	numeric (sequential 0 through 9)
A	Revision Level (alpha only: A=first issuance; then sequential B through Z)
-	delimiter
M	CV Type (E=envelope, L=lighting, M=mechanical)
2	CV Type (first numeric digit eg "2" from the mech-21)
1	CV Type (second numeric digit eg "1" from the mech-21)
C	Revision Level (alpha only: A=first issuance; then sequential B through Z)

9,999,999 numbers + 0	99,999 numbers	
Certificate of Compliance (CC)	Installation Certificate (CI)	Certificate of Field Verification and Diagnostic Testing (CV)
use 000000000 for CC documents		use 0000 for CC, CI, CA documents

Use only capitalized alpha digits; Omit use of the letter "O" to avoid confusion with the number Zero "0"; Omit use of the letter "I" to avoid confusion with the number One "1";

Figure JA7.5-1. Residential Registration Numbering Convention (and Example Number)

As shown in Figure JA7.5-1, the significance of the digits provides descriptors for: the registration provider; the year; the type of compliance document; the parent-child relationships between the documents; and the revision level of the respective parent and child documents. The digit type (Alpha or Numeric) and sequencing are also given.

The following are examples of registration numbers and the interpretation of the significance of the numbering as consistent with the descriptions given in Figure JA7.5-1.

113-N0007321B-000000000-0000: CHEERS provider, 2013 year project, residential new construction Certificate of Compliance document type, and sequential number 0007321, revision B.

113-N0007321B-M2100052A-0000: Installation Certificate document type associated with the above Certificate of Compliance #113-N0007321B-00000000-0000, MECH-21 Installation Certificate type, and sequential number 00052, revision A.

113-N0007321B-M2100052A-M21C: Certificate of Field Verification and Diagnostic Testing associated with the above Installation Certificate #113-N0007321B-M2100052A-0000, MECH-21 HERS Certificate of Field Verification and Diagnostic Testing document type, revision C.

JA7.5.5 Verification of Authenticity of Copies of Registered Documents

For projects for which Standards Section 10-103(a) requires the documents to be registered, compliance requires that documents shall first be registered with a Data Registry before being submitted to an enforcement agency for approval. Additionally, when revisions to the compliance documents are necessary, compliance requires the revised documents to be registered with the Data Registry prior to re-submittal to the enforcement agency for approval. Thus, the current revision of a registered document in the Data Registry shall be the reference document for validation of the authenticity of a document submitted to an enforcement agency or to another party to the construction project.

Registration Providers shall make available document verification services to authorized users of their Data Registry.

Methods for verification of a document's authenticity shall include basic manual comparison of a submitted document to the current version of the registered document on file in the Data Registry.

Additionally, the automated document validation utility provided by digital signature technology relieves a document recipient of the responsibility to manually inspect the received document to compare it with the original document displayed in the Data Registry.

The automated document validation utility creates a dependency on the receiver of the document to have the capability to process the digital signatures in order to validate the file automatically. The Adobe Reader software tool, which is freeware, has the capability to process the digital signatures for any digitally signed documents that utilize standardized digital signature technology.

Additional direction for use of the Data Registry digital signature technology for verification of document authenticity shall be given in the Data Registry Requirements Manual, in Reference Residential Appendix RA2, Reference Nonresidential Appendices NA1 and NA10, and in the Residential and Nonresidential Compliance Manuals.

JA7.5.6 Project Document Configuration

Data Registries shall maintain an accurate record of the all project compliance documents sufficient to establish the parent child relationships, revision levels, and status of completion of the documents that are required for the project to comply.

A certificate of compliance establishes the requirements for project documentation for prescriptive and performance compliance methods.

2013 Standards introduced mandatory HERS verification for residential projects for which there are options for compliance with the mandatory requirement. Thus, indication of the option selected for compliance with a residential mandatory measure may not be known until an installation certificate is submitted to a Data Registry to demonstrate compliance with the mandatory requirement. Specification for residential data registry tracking of these mandatory measure options to determine required documentation for the option selected shall be provided in the Data Registry Requirements Manual conforming to the descriptions and specifications for use of these compliance documents approved by the Commission.

JA7.5.6.1 Project Status Reports

The status of completion of a project shall be reported by the Data Registry.

The Data Registry shall determine the documents required for a project based on the Certificate of Compliance and maintain a summary report as to the status of completion of the documents required for the project to be complete, thus report whether the project qualifies for final inspection. The Project Status Report shall be an easily accessed feature available to authorized users of the Data Registry. Access to the report shall be facilitated by use of key words or search parameters relevant to the project, such that a user will have a convenient method for accessing the report.

The project status report shall be made available in a format that facilitates printing for use by persons who wish to use it as a cover sheet for a project documentation package.

Minimum information requirements for the project status report shall include the following:

JA7.5.6.1.1 Project Status Report Information for Residential Projects:

- Project name
- Project address
- Listing of the Certificate of Compliance documents required; date registered (or indicate not complete); registration number
- Listing of the Installation Certificate documents required; date registered (or indicate not complete); registration number
- Listing of the Certificate of Field Verification and Diagnostic Testing documents required; date registered (or indicate not complete); registration number
- Listing of the mandatory measure options required; options selected (refers to the installation Certificate and HERS Verification Documentation).

JA7.5.6.1.2 Project Status Report Information for Nonresidential Projects:

Note: Nonresidential Document registration is contingent upon approval of a nonresidential Data Registry by the Executive Director, and the requirement for nonresidential document registration is not effective until January 1, 2015.

- Project name
- Project address
- Listing of the Certificate of Compliance documents required; date registered (or indicate not complete); registration number
- Listing of the Installation Certificate documents required; date registered (or indicate not complete); registration number
- Listing of the Certificate of Acceptance documents required; date registered (or indicate not complete); registration number
- Listing of the Certificate of Field Verification and Diagnostic Testing documents required; date registered (or indicate not complete); registration number

JA7.5.6.2 Revision Control

When a revision to a compliance document is made, the revised version of the compliance document shall also be registered (a registration signer must sign again to register the revision), and the revision digit for the compliance document shall be incremented. Thus a copy of each registered revision of each registered document shall be transmitted to the Commission Compliance Document Repository.

When a revision to a compliance document that has registered "child" documents is performed, the "child" documents shall be stripped of their registered status and shall remain "orphaned" until signed again by the registration signer subsequent to making any necessary changes to the "orphaned child" document caused by the revision of the "parent" document.

A copy of the current revision of a document shall be submitted to the enforcement agency for all applicable approvals or inspections.

The data configuration for obsolete versions of compliance documents shall not be required to be retained in the Data Registry history or memory.

The current revision of any document in the registry shall be considered to be the only valid version of that document. All previous revisions of that document shall be considered obsolete, thus not valid for use for submittal to enforcement agencies to demonstrate compliance.

JA7.5.7 Certificate of Compliance Requirements

JA7.5.7.1 Prescriptive Certificate of Compliance Document

Procedures for submittal of prescriptive Certificate of Compliance documents may be by direct keyed-in data entry as described in Section JA7.7.1.1, or by other methods if approved in accordance with Section JA7.8. Details for the procedures and requirements for Data Registry features for prescriptive certificate of compliance document registration shall be given in the Data Registry Requirements Manual.

JA7.5.7.2 Performance Certificate of Compliance Document:

Procedures for submittal of the Certificate of Compliance shall use approved features of a Data Registry as described in Section JA7.8, and shall conform to the data exchange requirements given in Section JA7.7.1.2.

JA7.5.7.3 Multi-Orientation Plans (Residential)

The Data Registry shall ensure that multi-orientation performance Certificate of Compliance documents are configured in the Data Registry such that the registered multi-orientation Certificate of Compliance document is referenced for all build-outs of that master plan. The registered Certificate of Compliance that was approved by the enforcement agency shall be the Certificate of Compliance document that is the parent document for each and every dwelling unit built from that master plan.

Details that describe the procedures for tracking revisions to multi-orientation Certificate of Compliance Documents shall be given in the Data Registry Requirements Manual.

JA7.5.7.4 Multifamily Dwelling units

The Data Registry shall ensure that multi-family whole-building performance Certificate of Compliance documents are configured in the Data Registry such that the registered multi-family Certificate of Compliance document is referenced for all dwelling units in the multifamily building. The registered Certificate of Compliance that was approved by the enforcement agency shall be the Certificate of Compliance document that is the parent document for each and every dwelling unit specified by that whole-building certificate of Compliance document.

Details that describe the procedures for tracking revisions to multi-family whole-building Certificate of Compliance Documents shall be given in the Data Registry Requirements Manual.

JA7.5.8 Installation Certificate Requirements

JA7.5.8.1 Residential Installation Certificate

Procedures for submittal of residential Installation Certificate documents may be by direct keyed-in data entry as described in Section JA7.7.1.1, or by other methods if approved in accordance with Section JA7.8. Details for the required functional and technical elements necessary for registration of residential Installation Certificates for a Data Registry shall be given in the Data Registry Requirements Manual.

JA7.5.8.2 Nonresidential Installation Certificate

Nonresidential Installation Certificate document registration is contingent upon the approval of nonresidential Data Registries, and in any event shall not be required before January 01, 2015.

Procedures for submittal of Nonresidential Installation Certificate documents may be by direct keyed-in data entry as described in Section JA7.7.1.1, or by other methods if approved in accordance with Section JA7.8. Details for the required functional and technical elements necessary for registration of Nonresidential Installation Certificate documents for a Data Registry shall be given in the Data Registry Requirements Manual.

JA7.5.9 Certificate of Field Verification and Diagnostic Testing Requirements

Certificate of Field Verification and Diagnostic Testing documents are always registered documents.

Procedures for submittal of Certificate of Field Verification and Diagnostic Testing documents may be by direct keyed-in data entry as described in Section JA7.7.1.1, or by other methods if approved in accordance with Section JA7.8. Details for the required functional and technical elements necessary for registration of Certificates of Field Verification and Diagnostic Testing Documents for a Data Registry shall be given in the Data Registry Requirements Manual.

JA7.5.9.1 Managing Sample Groups

HERS Provider Data Registries are required to manage the group sampling procedures. Details that describe the requirements for managing sample groups are given in Reference Residential Appendix RA2 and in Reference Nonresidential Appendix NA1.

JA7.5.9.2 Group Numbering Convention

Group number is a HERS provider-designated identification number unique to the sample group to which a dwelling has been assigned. The providers shall utilize the numbering convention given in Figure JA7.5-2. below. The group number shall be reported on all Certificate of Field Verification and Diagnostic Testing documents that utilize group sampling for compliance.

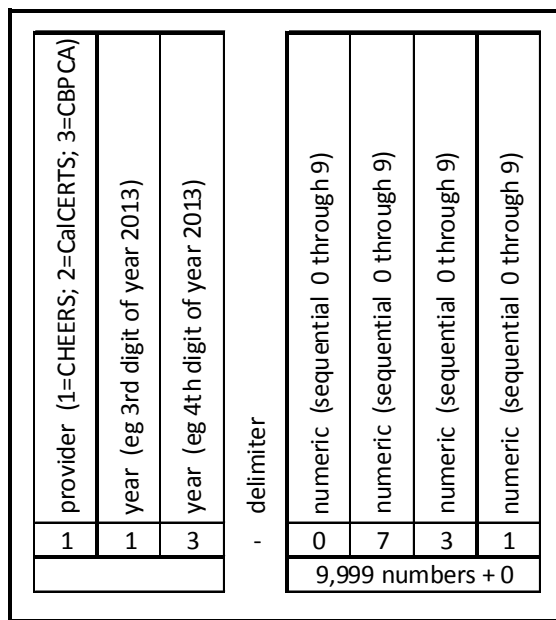


Figure JA7.5-2. Group Numbering Convention (and Example Number)

The following is an example group number and the interpretation of the significance of the numbering consistent with the descriptions given in Figure 4-1.

113-0731: CHEERS, group opened during year 2013, sequential group number 0731

JA7.5.10 Certificate of Acceptance Requirements

Certificate Acceptance document registration is contingent on the approval of nonresidential Data Registries, and in any event shall not be required before January 01, 2015.

Procedures for submittal of Certificate Acceptance documents may be by direct keyed-in data entry as described in Section JA7.7.1.1, or by other methods if approved in accordance with Section JA7.8. Details for the required functional and technical elements necessary for registration of Certificates of Acceptance documents for a Data Registry shall be given in the Data Registry Requirements Manual.

JA7.6 Electronic and Digital Signature Requirements

JA7.6.1 Introduction

This section defines the functional and technical requirements for the use of electronic and digital signatures to represent the hand written signature of Authorized Users to register compliance documents with a Data Registry. These specifications shall be implemented by a Data Registry as condition of approval of the Data Registry by the Commission or the Executive Director

JA7.6.2 Overall Description

JA7.6.2.1 Interfaces - Main Users

- **Authorized Users** of Data Registries who must sign Compliance Documents either as the Documentation Author, or Field Technician, or as the Registration Signer.
- **Registration Providers** who must implement the digital signature specifications into the Data Registry user interface to provide Electronic Signature capabilities to the Authorized Users of the Data Registry, and must append their digital signature to all registered compliance documents created in their Data Registry.
- **Commission Compliance Document Repository** which must receive registered documents transmitted from the Data Registries and will process the digital signature to validate the sender and the contents.
- **Persons or Software Entities who Validate Electronic Documents** who may receive electronic copies of registered documents made available by the Data Registries and will process the digital signature to validate the sender and the contents.
- **Compliance Software Tools** that export compliance documents for transmittal to the Data Registries that must subsequently be electronically signed and registered in the HERS registry.

JA7.6.2.2 Major Functions

The electronic and digital signature requirements of the HERS registry consist of the following major functions:

JA7.6.2.2.1 Electronic Signature Capability

The Data Registry shall provide electronic signature capability to authorized users.

JA7.6.2.2.2 Document Data Validation

The Data Registry shall check that compliance documents are complete and valid before making them available for signing and/or registering.

JA7.6.2.2.3 Signer Review and Signature Actions

The Data Registry shall provide functionality for authorized users to select, review, and sign compliance documents as a Documentation Author, Field Technician, or Registration Signer.

JA7.6.2.2.4 Digital Signatures

The Data Registry shall apply the Registration Provider's Digital Signature to compliance documents electronically signed by the registration signer when concluding the document registration procedure in the Data Registry. The function of the Registration Provider's digital signature is to provide verification that the document came from the Data Registry and to provide automated document validation to persons or agencies that receive submittals of these registered documents electronically.

JA7.6.2.2.5 Transmittal to Commission Compliance Document Repository

The Data Registry, upon completion of the registration procedure, shall immediately and automatically transmit a copy of the completed registered compliance document to the Commission Compliance Document Repository which will process the HERS provider's digital signature to validate the sender and the compliance document contents.

JA7.6.2.2.6 Document Retention

The Data Registry shall retain a copy of the completed registered electronic compliance document and make the document available for use by authorized users of the registry who may access a copy of the registered document and may subsequently process the Data Registry digital signature to validate the sender and the compliance document contents.

JA7.6.2.2.7 Receive and Process Output Files From Compliance Software Tools

The Data Registry shall process completed compliance documents transmitted from Compliance software tools or other software tools approved by the Commission or the Executive Director for use in Compliance Document Registration processes.

JA7.6.2.3 User characteristics

There are four categories of users who will participate in the electronic and digital signature functionality:

JA7.6.2.3.1 Users who will use electronic signatures to sign and register compliance documents.

This is a heterogeneous Category composed of HERS raters, building designers, building contractors, installation contractors, energy consultants, home owners, and others.

JA7.6.2.3.2 Users who use a digital signature to secure registered compliance documents.

This is a small category consisting of each approved Registration Provider.

JA7.6.2.3.3 Users who will receive the digitally signed registered compliance documents

These users will need to apply encryption processing of the digital signature to identify the sender and verify the contents of the received document. The Commission Compliance Document Repository is a main user in this category of users. Also, users who take advantage of digital signature automated validation capabilities to verify the authenticity of registered compliance documents received as electronic submittals from various other participants in the compliance documentation process will be another main user in this category of users.

JA7.6.2.3.4 Users who transmit electronic compliance documentation to the Data Registry.

Title 24 compliance software tools are the main users in this Category. The electronic compliance documents exported from the compliance tools must be formatted to provide location coordinate information for use when applying the visible aspects of electronic and digital signatures to the compliance documents. The Data Registry must be capable of appending the visible aspects of electronic and digital signatures to the correct locations in the signature blocks on the imported compliance documents during the subsequent electronic signature and registration procedures.

Electronic and digital signature target coordinate information shall be specified in the 2013 Alternative Calculation Method (ACM) Reference Manual and shall be implemented by compliance software vendors. The Data Registry shall implement the capability to append the visible aspects of electronic and digital signatures to the signature blocks on compliance documents in a manner consistent with the specifications for locating electronic and digital signatures described in the 2013 Alternative Calculation Method (ACM) Reference Manual.

JA7.6.2.4 Constraints

JA7.6.2.4.1 Schedule Constraint:

The electronic and digital signature capabilities shall be implemented at least six months before the effective date for the 2013 Standards.

JA7.6.2.4.2 Software Constraint:

The digital signature technology including the hash algorithm and asymmetric key encryption used shall be consistent across all Data Registries because the Commission Compliance Document Repository will not support multiple approaches.

JA7.6.2.5 Assumptions and Dependencies

The main purpose of applying the Registration Provider's digital signature to registered compliance documents is to provide the Commission document repository and the authorized users of the Data Registry with an automated way of authenticating the identity of the sender and verifying that the compliance document received is exactly the same as the original file. The automated document validation utility provided by digital signature technology relieves the document recipient of the responsibility to manually inspect the received document to compare it with the original document displayed on the Data Registry which is a process that requires additional staff time and is prone to errors.

The automated document validation utility creates a dependency on the receiver of the document to have the capability to process the digital signatures in order to validate the file automatically. The Adobe Reader software tool, which is freeware, has the capability to process the digital signatures for any digitally signed documents that utilize standardized digital signature technology.

JA7.6.3 Specific requirements

JA7.6.3.1 Interface Requirements

JA7.6.3.1.1 User interfaces

JA7.6.3.1.1.1 All Data Registries shall utilize the same format, informational order, and content unique to the applicable type of compliance document when displaying the completed compliance documents for review and signing as part of the registration process. These document layouts shall conform to the approved layout specified in the Data Registry Requirements Manual.

JA7.6.3.1.2 Software interfaces

JA7.6.3.1.2.1 All registered compliance documents transmitted from any Data Registry shall be secured with the Registration Provider digital signature.

JA7.6.3.1.2.1.1 All Data Registries shall use the same hash algorithm to generate the document's message digest for the digital signature.

JA7.6.3.1.2.1.1.1 All Data Registries shall use the SHA-1 hash algorithm, which was designed by the National Security Agency (NSA) and published by the NIST as a U.S. Federal Information Processing Standard. SHA stands for Secure Hash Algorithm.

JA7.6.3.1.2.1.2 All Data Registries shall use the same asymmetrical key encryption for generating the digital signature private and public keys used to encrypt and decrypt the message digest.

JA7.6.3.1.2.1.2.1 All Data Registries shall use PKCS1 asymmetric key encryption, a widely supported standard, for generating the digital signature private and public keys. In cryptography, PKCS1 is the first of a family of standards called Public-Key Cryptography Standards (PKCS), published by RSA Laboratories. It provides the basic definitions of and recommendations for implementing the RSA algorithm for public-key cryptography.

JA7.6.3.1.2.1.3 Registration Providers shall provide their digital signature public key to any other software entity that receives registered compliance documents from their Data Registry, in particular the Commission document repository.

JA7.6.3.1.2.1.4 The Commission document repository, which will receive registered compliance documents electronically from Data Registries, will have to implement digital signature processing capability in order to perform automatic verification and validation processing on received documents.

JA7.6.3.1.2.1.5 Users who take advantage of digital signature automated validation capabilities to verify the authenticity of registered compliance documents received from Data Registries will have to implement digital signature processing capability in order to perform automatic verification and validation processing on received documents. The Adobe Reader software tool, which is freeware, has the capability to process the digital signatures for any digitally signed documents that utilize standardized digital signature technology.

JA7.6.3.1.2.2 All Data Registries shall implement the same security protocol for importing completed compliance document transmittals generated by 3rd party software tools.

JA7.6.3.1.2.2.1 All Data Registries shall be capable of importing completed electronic compliance data and document transmittals generated by compliance software tools. These data and document transmittals shall conform to the applicable specifications in the 2013 ACM Reference Manual and the 2013 Data Registry Requirements Manual.

JA7.6.3.1.2.2.2 All 3rd party software entities shall implement the applicable security protocols for transmittal of electronic compliance documents specified by 2013 ACM Reference Manual and the 2013 Data Registry Requirements Manual as a condition of approval for use in transmittal of electronic compliance documents to the Data Registries.

JA7.6.3.2 Functions

JA7.6.3.2.1 Electronic Signature Capability

The Data Registry shall provide electronic signature capability to authorized users who have the role of Documentation Author, Field Technician, or Registration Signer. A Field Technician Signature is required only on Certificate of Acceptance Documentation. A Certificate of Acceptance document requires that there be both a Documentation Author signature and a Field Technician signature prior to registration signing.

JA7.6.3.2.1.1 Any authorized user of a Data Registry can request an electronic signature in order to sign compliance documents as the documentation author, Field Technician, or as the registration signer.

JA7.6.3.2.1.2 Registration Providers shall gather and verify any and all information necessary to validate a user applicant's identity and applicable qualifications as prerequisite to authorizing assignment to a user applicant an electronic signature, or permissions as a documentation author, Field Technician, or Registration Signer.

JA7.6.3.2.1.2.1 Some information required for assigning an electronic signature may have been required as prerequisite to creating the authorized user account. Examples of this kind of user identification information include authorized user's full name, business name, address, telephone, email address, and applicable professional qualifications, licenses and/or certificates.

JA7.6.3.2.1.3 Authorized users shall provide to the Data Registry an electronic image of their handwritten signature for use in displaying their electronic signature.

JA7.6.3.2.2 Document Data Validation

The Data Registry shall check that compliance documents are complete and valid before making them available for signing and/or registering. The detailed rules for data validation for each document shall be specified in the Data Registry Requirements Manual.

Any applicable error messages shall be posted indicating the actions necessary as prerequisite to completion of the registration process.

JA7.6.3.2.2.1 When a documentation author indicates that the compliance document is complete and he/she is ready to sign it, the Data Registry shall verify that all information necessary to complete the document has been provided as prerequisite to making the signing functionality available to the documentation author.

JA7.6.3.2.2.2 The Data Registry shall verify that a compliance document is complete and has received the documentation author's signature as prerequisite to making the compliance document available for registration signing. For Certificate of Acceptance documents, both the Documentation Author and the Field Technician signatures shall be provided as prerequisite to making the document available for registration signing.

JA7.6.3.2.3 Signer Review and Signature Actions

The Data Registry shall provide functionality for authorized users to select, review and sign compliance documents as a documentation author Field Technician or registration signer.

JA7.6.3.2.3.1 The documentation author can electronically sign a compliance document if it has been verified as complete by the Data Registry.

JA7.6.3.2.3.2 The Field Technician can electronically sign a Certificate of Acceptance document if it has been verified as complete by the Data Registry and has the documentation author's signature.

JA7.6.3.2.3.3 The registration signer can electronically sign a compliance document if it has been verified as complete by the Data Registry and has the documentation author's signature. For Certificate of Acceptance documents both the Documentation Author signature and the Field Technician signature are prerequisite to allowing registration signing.

JA7.6.3.2.3.4 When an authorized user selects to sign a compliance document, the Data Registry provides a display of the compliance document layout that allows the user access to any part of the compliance document for review, as well as a display of the declaration statement.

JA7.6.3.2.3.3.1 All compliance documents shall include this text in the declaration statement for the documentation author: "I certify that the information provided on this document is accurate and complete."

JA7.6.3.2.3.3.2 All compliance documents shall include this text in the declaration statement for the registration signer: "I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct."

JA7.6.3.2.3.3.3 All compliance document layouts displayed shall conform to the same format, informational order, and content approved by the Energy Commission. Compliance Document data and layout specifications shall be published in the registry requirements reference manual.

JA7.6.3.2.3.5 When the documentation author activates the signing control to sign the compliance document, the Data Registry shall display the completed documentation author signature block including the documentation author's electronic signature utilizing the visible image of his or her hand written signature, applicable professional qualifications, licenses and/or certificates the documentation author holds, and the date and time the document was signed.

JA7.6.3.2.3.6 When the Field Technician activates the signing control to sign the Certificate of Acceptance document, the Data Registry shall display the completed documentation author signature block including the documentation author's electronic signature utilizing the visible image of his or her hand written signature, applicable professional qualifications, licenses and/or certificates the Field Technician holds, and the date and time the document was signed.

JA7.6.3.2.3.7 When the registration signer activates the signing control to register the compliance document, the Data Registry shall display the completed signature block including the registration signer's electronic signature utilizing the visible image of his or her hand written signature, applicable professional qualifications, licenses and/or certificates the registration signer holds, the date and time the document was signed, with the newly generated registration number appended to the footer of each of the pages of the document. The registration numbering convention shall conform to the specifications given Reference Joint Appendix JA7 or in the 2013 Data Registry Requirements Manual

JA7.6.3.2.4 Digital Signatures

The Data Registry shall apply the Registration Provider digital signature to compliance documents electronically signed by the registration signer when concluding the document registration procedure in the Data Registry.

JA7.6.3.2.4.1 When a compliance document is electronically signed by the registration signer, the Data Registry shall apply a visible indication of the Registration Provider's digital signature to the document which shall include the following statement: "This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information".

JA7.6.3.2.4.1.1 The Data Registry digital signature software generates a hash number from the contents of the registered compliance document to create the message digest part of the digital signature.

JA7.6.3.2.4.1.2 The Data Registry digital signature software encrypts the message digest using the Registration Provider's digital signature private key to produce the digital signature.

JA7.6.3.2.4.1.3 The Data Registry digital signature software attaches the digital signature to the compliance document, displays the Registration Provider name and logo on each page of the document, and the digital signature's date and time stamp in the footer of each page of the compliance document.

JA7.6.3.2.5 Transmittal to Commission Compliance Document Repository

The Data Registry, upon completion of the registration procedure, shall immediately and automatically transmit a copy of the completed registered compliance document to the Commission document repository which will process the Registration Provider's digital signature to validate the sender and the compliance document contents.

JA7.6.3.2.5.1 The Data Registry shall transmit the digitally signed and registered compliance document to the Commission document repository using a secure transmission protocol. The details for the secure transmission protocol shall be specified in the approved Registry Requirements Reference Manual.

JA7.6.3.2.6 Document Retention

The Data Registry shall retain a copy of the completed registered compliance document and make the document available for use by authorized users of the registry who may print a hard copy, or access an electronic copy of the registered document and may subsequently process the Registration Provider's digital signature to validate the sender and the compliance document contents.

JA7.6.3.2.6.1 The Data Registry shall provide users the functionality to either view registered documents in their web browser or save the document file to their desktop.

JA7.6.3.2.6.2 The Data Registry shall provide functionality to transmit registered compliance documents to requesters.

JA7.6.3.2.6.3 The Data Registry shall make their digital signature public key available for all types of access to these registered documents.

JA7.6.3.2.7 Receive and Process Output Files From Compliance Software Tools

The Data Registry shall process completed electronic compliance documents transmitted from compliance software tools.

JA7.6.3.2.7.1 The Data Registry shall have functionality to receive password protected zipped files containing electronic documents and data exported from compliance software tools. The zipped export file password shall be made available to the Data Registry by the compliance software vendor in a separate secure communication as specified in the Registry Requirements Reference Manual. The password for the zipped export file shall not be made available to the compliance software users or the Data Registry authorized users, or others who do not have the authority to administer the security measures for the compliance software or the registries.

JA7.6.3.2.7.2 The Data Registry shall have functionality to unzip the files it receives that contain completed compliance documents exported from compliance software tools using the password provided by the compliance software vendor. If the password successfully unzips the file, the Data Registry shall add the compliance document to the registry according to methods specified in Registry Requirements Reference Manual. If the password fails to unzip the transmitted file, the Data Registry shall display an error message to that effect, and flag any other applicable corrective actions as specified in Registry Requirements Reference Manual.

JA7.7 Data Exchange Requirements

The detailed specification for the data exchange procedures for Data Registries involves software methods that define a compliance document (not only) by the information required to complete the document, but also by the data descriptions for the document layout and formatting for the image of the completed compliance document. Thus each of the compliance documents in each of the compliance document categories shall have a unique data description template that encompasses all information necessary to produce a completed registered document given the specific information for the document that must be prepared for submittal. The compliance document images rendered from the data templates shall be consistent with the informational content and graphical layout formatting for the compliance documents approved by the Commission.

Detail specification for the data definitions and data formats used to render each of the registered compliance documents utilized for data exchange procedures for the compliance documents shall be given in the Data Registry Requirements Manual and shall be utilized for all applicable data exchange procedures.

Data registries shall provide web-based services to authorized users to enable data exchange between the Data Registry and the authorized user's computer system(s).

Data exchange transactions used for Data Registry documentation processes shall be transactions that utilize approved features of the Data Registry as required by Section JA7.8. Use of features that have not been approved in accordance with the procedures in Section JA7.8 shall not be allowed.

JA7.7.1 Data Exchange Requirements for Document Registration

JA7.7.1.1 Keyed-in Data Entry

Data Registries shall have the capability to receive data input transmitted from an authorized user's computer system keyboard entry devices and pointing devices when the authorized user has logged on to the Data Registry web service.

JA7.7.1.2 Imports from Software Tools External to a Data Registry

For document registration procedures that require electronic data or image files be transmitted to a Data Registry, the electronic data or image file transmittals shall conform to the data exchange requirements specified by Section JA7.7 and the Data Registry Requirements Manual.

Note: Any software tool that utilizes data transmission to a Data Registry for purposes of document registration in a Data Registry shall be approved for use with the Data Registry in accordance with all applicable procedures of Section JA7.8.

JA7.7.1.3 Image File Format for Document Registration

Image files transmitted to a Data Registry as part of document registration procedures shall be non-editable "flat" image files in pdf format. Registered document images produced by a Data Registry shall be non-editable "flat" image files in pdf format. The pdf image shall not be recreated from data every time a user wishes to view the registered document. The image shall be generated only once, and stored as a "non-editable" image file.

JA7.7.1.4 Export to Commission Compliance Document Repository

Contingent upon approval of a document repository by the Executive Director, upon conclusion of the registration of a document, the Data Registry shall immediately and automatically export a copy of the registered compliance document to the Commission Document Repository. The export shall conform to the specifications determined by the document repository requirements. The specification for data and document exports to the document repository shall be included in the Data Registry Requirements Manual.

Exports to the Commission Compliance Document Repository shall have both data and image descriptions of the registered compliance document.

JA7.7.1.5 Electronic Copies of Registered Compliance Documents for Submittals

Registered document files retained by a Data Registry shall be made available to authorized users of the Data Registry for download for use for electronic submittals. These electronic copies of the registered compliance documents shall have the Registration Provider's digital signature which provides for automatic electronic validation of the authenticity of the document. Refer to Section JA7.5.5 for more information about automat.

JA7.8 Data Registry Approval

This section explains the requirements for approval of Data Registries that provide services to authorized users for creating and registering documents required for compliance with Part 6.

The Commission shall perform acceptance testing of Data Registries when a registration provider applicant submits an application, in order to determine if the requirements in Reference Joint Appendix JA7 and the Registry Requirements Reference Manual have been met.

Additionally, when a Data Registry incorporates new or optional features that are not specified by Reference Joint Appendix JA7 or the Data Registry Requirements Manual, the Commission shall perform acceptance testing of the optional features to ensure the optional features provide document registration results consistent with the requirements of Reference Joint Appendix JA7 and the Data Registry Requirements Manual.

JA7.8.1 Overview

The approval procedure requires self-testing and self-certification by the Registration Provider applicant. The Registration Provider applicant shall conduct the specified tests, evaluate the results and certify in writing that the Data Registry passes the tests. The Commission shall perform spot checks and may require additional tests to verify that the proposed Data Registry is suitable for use for providing the compliance document registration functionality required by the Standards. The vendor shall develop a user manual explaining how to perform the document registration procedures offered by the Data Registry. The user manual shall be checked by the Commission for accuracy and ease of use.

JA7.8.2 Application Checklist

The following is a list of the items that shall be included in an application package for Data Registry certification by the Commission:

JA7.8.2.1 Registration Provider Applicant Certification Statement.

A statement from the Registration Provider applicant certifying the reliability and accuracy of the Data Registry when used for registration of Compliance Documents in accordance with the requirements of Standards Section 10-103(a), Reference Joint Appendix JA7, and the Data Registry Requirements Manual approved by the Commission.

The template for the Data Registry Certification Statement document shall be published in the Data Registry Requirements Manual, and electronic versions of the Data Registry Certification Statement template shall be made available to Registration Provider applicant upon request.

JA7.8.2.2 Compliance Document Registration Test Results.

Electronic copies of the results of the data exchange verification tests, and electronic copies of the registered documents that result from the registration tests shall be provided. The required tests shall be specified in the Data Registry Requirements Manual approved by the Commission.

JA7.8.2.3 User Manual

A copy of the Data Registry user manual shall be provided in an electronic format that can be utilized by word processing software.

JA7.8.2.4 Data Registry Authorized User Account Access.

User name and password information shall be provided to allow access to the Data Registry for Commission staff to perform verification of Data Registry functionality.

JA7.8.2.5 Application Fee

An application fee of \$1,000.00 (one thousand dollars) is required to cover the costs of evaluating the Data Registry application.

JA7.8.3 Types of Approval

There are three types of Data Registry approval: full approval, streamlined approval of modified features, and amendments to full approvals. Full approval is required for all Data Registry changes unless they qualify for the streamlined approval process, or the amendment process.

JA7.8.3.1 Full Approval

Full approval is required when an applicant Data Registry service has not previously been approved by the Commission. Additionally, the Commission may require that all Data Registries be approved again when the Standards are updated, or whenever substantial revisions are made to the Data Registry approval process.

When Data Registry re-approval is mandated by the Commission, all Registration Providers shall be notified of the renewal timetable. There shall also be a revised Data Registry Requirements Manual published with complete instructions for re-approval.

JA7.8.3.2 Streamlined Approval

Certain types of changes to Data Registry software applications may be made through a streamlined process. Examples of changes that qualify for streamlined approval are modifications to the user interface, or implementation of a system software modification for which there are no changes to the document registration procedures, data input requirements, or registered documentation output for the Data Registry. If a Data Registry modification qualifies for streamlined approval, then the following procedure shall be followed:

1. The Registration Provider applicant shall prepare an addendum to the user manual describing the change to the Data Registry if applicable.
2. The Registration Provider applicant shall notify the Commission in writing to provide a description of the change and the reason for making the change.
3. The Commission shall respond to the Registration Provider applicant within 45 days. The Commission response to the applicant may approve the modification; request additional information; refuse to approve the modification; or require that the Registration Provider make specific changes to either the User Manual addendum, the Data Registry functionality or the user interface.
4. With Commission approval, the Registration Provider may make the modified data Registry available for use for registration of compliance documentation, along with the modified user manual or addendum to the user manual, and shall notify authorized users of the Data Registry.

JA7.8.3.3 Amendments

Data Registry approval shall be amended when new or optional features are added. Additional requirements for the approval procedures for self-testing and self-certification by the Registration Provider applicant for new or optional features shall be specified in the Data Registry Requirements Manual.

An example of an optional feature is a document generation software tool other than one of the approved Title 24 Compliance Software tools that operates external to the Data Registry and submits documentation to the Data Registry for registration. Another example of an optional feature is a data gathering tool that is external to the Data Registry and provides an alternative to the keyboard entry of data by uploading of electronic information (such as field test data) to the Data Registry to create or complete compliance documentation.

The Registration Provider shall submit results of any required validation tests applicable to the optional feature approval, and electronic copies of registered documents from applicable registration tests. It is not necessary to resubmit Data Registry test results previously submitted that remain valid.

Any amendment to an existing Data Registry approval shall be accompanied by a cover letter explaining the type of amendment requested, and copies of any other applicable documents that are required. All items on the application checklist shall be submitted, when applicable. The timetable for approval of amendments is the same as for full approval.

JA7.8.3.4 When Approval Is Not Required

Changes that do not affect the Data Registry user interface or document registration functionality do not require full or streamlined approval. However, the Registration Provider shall notify the Commission and provide the Commission with an updated user manual if applicable. Re-approval is required for any Data Registry change that affects the user interface, the registered compliance document output, or any other change that would affect conformance with the requirements of Reference Joint Appendix JA7 or the Data Registry Requirements Manual. Any questions regarding applicable approval procedures shall be directed to the Commission.

JA7.8.4 Decertification of Data Registries

The Commission may decertify (rescind approval of) Data Registries through various means.

JA7.8.4.1 Procedures that Initiate Decertification

1. All Data Registries are decertified when the Standards undergo substantial changes, usually occurring with each Standards update.

2. Any Data Registry can be decertified by a letter from the Registration Provider requesting that the Data Registry be decertified. The decertification request shall briefly describe the reasons that justify the need for decertification.

3. Any "initiating party" may commence a procedure to decertify a Data Registry according to the steps outlined below. The intent is to provide a means whereby serious Data Registry errors, flawed numeric results, improper registered document output, or incorrect user manual or online help documentation not discovered in the Data Registry approval process can be verified, and a corrective course of action determined. In this process, there is ample opportunity for the Commission, the Registration Provider, and all interested parties to evaluate any alleged errors in the Data Registry functionality.

JA7.8.4.2 Challenging a Data Registry and Initiating Decertification

A description of the process for challenging a Data Registry or initiating a decertification procedure follows:

1. Any party may initiate a review of a Data Registry approval by sending a written communication to the Commission's Executive Director. (The Commission may be the initiating party for this type of review by noticing the availability of the same information listed here.) The initiating party shall:

(a) State the name of the Data Registry that contains the alleged errors;

(b) Identify concisely the nature of the alleged errors in the Data Registry that require review;

(c) Explain why the alleged errors are serious enough in their effect on document registration compliance to justify a decertification procedure; and

(d) Include appropriate data electronically (in a format agreed to by the Commission staff) and/or information sufficient to evaluate the alleged errors.

2. The Executive Director shall make a copy or copies of the initial written communication available to the Registration Provider and interested parties within 30 days. Comments from interested parties shall be received within 60 days of the acceptance of the original application.

3. Within 75 days of receipt of the written communication, the Executive Director may request any additional information needed to evaluate the alleged data Registry errors from the party who initiated the decertification review process. If the additional information is incomplete, this procedure will be delayed until the initiating party submits complete information.

4. Within 75 days of receipt of the initial written communication, the Executive Director may convene a workshop to gather additional information from the initiating party, the Registration Provider and interested parties. All parties will have 15 days after the workshop to submit additional information regarding the alleged program errors.

5. Within 90 days after the Executive Director receives the application or within 30 days after receipt of complete additional information requested of the initiating party, whichever is later, the Executive Director shall either:

(a) Determine that the Data Registry need not be decertified; or

(b) Submit to the Commission a written recommendation that the Data Registry be decertified.

6. If the Commission approves the Data Registry decertification, it shall take effect 60 days later. During the first 30 days of the 60 day period, the Executive Director shall send out a Notice to Enforcement Agencies and Interested Parties announcing the decertification.

JA7.8.4.3 Burden of Proof

All initiating parties have the burden of proof to establish that the review of alleged Data Registry errors should be granted. The decertification process may be terminated at any time by mutual written consent of the initiating party and the Executive Director.

The Registration Provider may use the 180 to 210-day period outlined here to update the Data Registry, get it re-approved by the Commission, and make available for use by authorized users, the revised version that does not contain the errors initially brought to the attention of the Commission.

JA7.8.5 Document Registration Supplement

Each Registration Provider is required to publish a Document Registration Supplement to the Data Registry users' manual. This requirement may be met with help screens incorporated into the Data Registry user interface, however, a printed version which include all help screen items must be submitted with the application. The Document Registration Supplement shall serve two major purposes. First, the information helps building permit applicants to use the Data Registry correctly and assists with preparation of registered documentation for use for submittals. Second, the information helps to inform enforcement agency officials who check permit applications for compliance with Building Energy Efficiency Standards.

The Document Registration Supplement shall describe the specific procedures for using the Data Registry for completing registered compliance documents. The Supplement shall provide instructions for preparing the documentation data input and utilizing the registered documents for submittals. A sample of a properly documented building project shall be included.

Document Registration Supplements shall be written in a clear and concise manner and with an organization and format that will allow users to quickly locate the topic and understand the instructions. Also, Registration Providers shall make electronic copies of their compliance supplement available from the Data Registry web client to all building departments in California.

The following sections describe the information that shall be included in all compliance supplements. It also presents the required organization for that information.

JA7.8.5.1 Energy Commission Approval

This section includes a copy of the official Energy Commission notice of approval of the Data Registry. It shall include the date of approval, and may include an expiration date for approval as well. The Energy Commission will provide this notice upon completion of evaluation and approval of the Data Registry service.

JA7.8.5.2 Data Registry Capabilities

This section shall discuss the Data Registry capabilities, providing explanation of how to access these capabilities, and the purpose for each of these features. Reference may be made to sections of the Data Registry Users Manual for more complete description.

JA7.8.5.3 Preparing Basic Documents

This section shall cover the basic use of the Data Registries to prepare each of the basic Compliance Document types. Reference may be made to the users' manual, but this section should include a complete summary of all document creation methods or commands necessary to completed the required registered documents.

JA7.8.5.4 Optional Features

This section explains The optional features (if any) that have been approved for use with the Data Registry, and provides instruction for use of the Optional Features for completing registered project documentation.

JA7.8.5.5 Instruction for Submittal of the Registered Document(s)

This section shall contain instruction for completing submittals of completed registered documents to enforcement agencies or other persons who require copies of completed registered documents. Instruction shall be given for all methods of submittal the Data registry supports, including various methods for submittal of electronic copies of the registered documents, as well as for printing of paper copies

JA7.8.5.6 Sample Compliance Documentation

This section shall include an example of a complete set of compliance documentation for a sample building. The building need not be overly complex, nor need it include every document type possible. The example should, however, include example documentation for all Compliance document types that would normally be submitted for any occupancy types administered by the Data Registry.

JA7.8.5.7 Related Publications

The Compliance Supplement should refer users to the following related Energy Commission publications and where to obtain them:

- 2013 Building Energy Efficiency Standards (publication number unknown at time of printing)
- 2013 Residential Compliance Manual (publication number unknown at time of printing)
- 2013 Nonresidential Compliance Manual (publication number unknown at time of printing)

These publications are available from:

California Energy Commission
Publications Unit
1516 Ninth Street
Sacramento CA 95814
(916) 654-5200

